



#6

# SEQUENCE LISTING

<110> ~~Bu~~, Catherine E  
Prayaga, Sudhirdas K  
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Rastelli, Luca  
Zerhusen, Bryan D  
Mezes, Peter S

<120> Novel Proteins and Nucleic Acids Encoding the Same

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<140> 09/730,617

<141> 2000-12-05

<150> 60/169,056

<151> 1999-12-06

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<170> PatentIn Ver. 2.1

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Asp	Ser	Phe	Asn	Arg	Pro	Ser	Pro	Ala	Pro	Leu	Asn	Arg	Pro	Arg	Ser
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Phe Val Gly Cys Ala Val Arg Glu Phe Thr Phe Leu Ala Lys Lys Pro
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Gly Cys Arg Gly Leu Arg Ile Thr Thr Asp Ala Cys Trp Gly Arg Cys
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Glu Thr Trp Glu Lys Pro Ile Leu Glu Pro Pro Tyr Ile Glu Ala His
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His Arg Val Cys Thr Tyr Asn Glu Thr Lys Gln Val Thr Val Lys Leu
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Pro Asn Cys Ala Pro Gly Val Asp Pro Phe Tyr Thr Tyr Pro Val Ala
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Ile Arg Cys Asp Cys Gly Ala Cys Ser Thr Ala Thr Thr Glu Leu Arg
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Arg Arg Gln Gly Ser Arg Thr Thr Gly Thr Arg Trp Arg His Ala Ala
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Val Arg Asp Lys Val Ser Leu Leu Lys Ala Val Asp Gly Trp Asn Gly  
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Cys Ala Glu Lys Ile Cys Ile Leu Pro Asn Arg Gly Leu Ala Arg Thr  
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 Pro Leu Gly Thr Ala Pro His Thr Ser Leu Arg Asp Gln Arg Leu Gln  
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 Arg Leu Gln Leu Ser His Asp Leu Leu Gly Ile Leu Leu Leu Lys Lys  
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 35 40 45  
 Thr Gly His Phe Met Gly Lys Lys Ser Leu Glu Pro Ser Ser Pro Ser  
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His Trp Gly Gln Leu Pro Thr Pro Pro Leu Arg Asp Gln Arg Leu Gln  
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Leu Ser His Asp Leu Leu Gly Ile Leu Leu Leu Lys Lys Ala Leu Gly  
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Val Gln Ile Leu Gln Lys  
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Lys Lys Ser Leu Glu Pro Ser Ser Pro Ser Pro Leu Gly Thr Ala Pro  
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His Thr Ser Leu Arg Asp Gln Arg Leu Gln Leu Ser His Asp Leu Leu  
65 70 75 80

Gly Ile Leu Leu Leu Lys Lys Ala Leu Gly Val Ser Leu Ser Arg Pro  
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Arg Leu Leu Gln Lys  
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<211> 121

<213> Homo sapiens

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Glu Pro Arg Ser Arg Ala Ser Lys Ile Arg Val His Ser Arg Gly Asn  
35 40 45

Leu Trp Ala Thr Gly His Phe Met Gly Lys Lys Ser Leu Glu Pro Ser  
50 55 60

Ser Pro Ser His Trp Gly Gln Leu Pro Thr Pro Pro Leu Arg Asp Gln  
65 70 75 80

Arg Leu Gln Leu Ser His Asp Leu Leu Gly Ile Leu Leu Leu Lys Lys  
85 90 95

Ala Leu Gly Val Ser Leu Ser Arg Pro Ala Pro Gln Ile Gln Tyr Arg  
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Arg Leu Leu Val Gln Ile Leu Gln Lys  
115 120

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<213> Salmo salar

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 Pro Pro Tyr Ile Glu Ala His His Arg Val Cys Thr Tyr Asn Glu Thr  
 35 40 45  
 Lys Gln Val Thr Val Lys Leu Pro Asn Cys Ala Pro Gly Val Asp Pro  
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<400> 35

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20 25 30

Ser Pro Phe Ser Thr Val Tyr Gln His Val Cys Thr Tyr Arg Asp Val  
35 40 45

Arg Tyr Glu Thr Val Arg Leu Pro Asp Cys Pro Pro Gly Val Asp Pro  
50 55 60

His Ile Thr Tyr Pro Val Ala Leu Ser Cys Asp Cys Ser Leu Cys Thr  
65 70 75 80

Met Asp Thr Ser Asp  
85

<210> 36

<211> 117

<212> PRT

<213> Clupea pallasii

<400> 36

Pro Met Ala Leu Leu Leu Leu Ala Gly Tyr Gly Cys Val Leu Gly Ala  
1 5 10 15

Ser Ser Gly Asn Leu Arg Thr Phe Val Gly Cys Ala Val Arg Glu Phe  
20 25 30

Thr Phe Leu Ala Lys Lys Pro Gly Cys Arg Gly Leu Arg Ile Thr Thr  
35 40 45

Asp Ala Cys Trp Gly Arg Cys Glu Thr Trp Glu Lys Pro Ile Leu Glu  
50 55 60

Pro Pro Tyr Ile Glu Ala His His Arg Val Cys Thr Tyr Asn Glu Thr  
65 70 75 80

Lys Gln Val Thr Val Lys Leu Pro Asn Cys Ala Pro Gly Val Asp Pro  
85 90 95

Phe Tyr Thr Tyr Pro Val Ala Ile Arg Cys Asp Cys Gly Ala Cys Ser

100

105

110

Thr Ala Thr Thr Glu  
115

&lt;210&gt; 37

&lt;211&gt; 47

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: consensus  
sequence

&lt;400&gt; 37

Pro Leu Leu Cys Val Leu Ala Asn Leu Cys Thr Lys Gly Cys Arg Leu  
1 5 10 15

Thr Cys Gly Cys Thr Glu Pro Pro Val Cys Thr Tyr Thr Leu Pro Cys  
20 25 30

Ala Gly Val Asp Pro Thr Tyr Pro Val Ala Cys Cys Cys Ser Thr  
35 40 45

&lt;210&gt; 38

&lt;211&gt; 116

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 38

Pro Glu Cys Thr Ile Leu Leu Leu Leu Cys Met Cys Val Leu Ala Val  
1 5 10 15

Pro Ala Gln Cys Phe Asn Leu Gln Pro Cys Val Leu Val Asn Glu Thr  
20 25 30

Val Ser Val Glu Lys Glu Gly Cys Pro Arg Cys Leu Val Phe Arg Thr  
35 40 45

Thr Ile Cys Ser Gly His Cys Pro Thr Lys Glu Pro Val Tyr Lys Ser  
50 55 60

Pro Phe Ser Val Val Asn Gln His Val Cys Thr Tyr Gly Asn Phe Arg  
65 70 75 80

Tyr Glu Thr Ile Arg Leu Pro Asp Cys Ala Asp Gly Val Asp Pro Leu

85

90

95

Val Thr Tyr Pro Val Ala Leu Ser Cys Glu Cys Ser Leu Cys Ser Met  
100 105 110

Asp Thr Ser Asp  
115

<210> 39  
<211> 101  
<212> PRT  
<213> Homo sapiens

<400> 39  
Ser Ser Gly Asn Leu Arg Thr Phe Val Gly Cys Ala Val Arg Glu Phe  
1 5 10 15

Thr Phe Leu Ala Lys Lys Pro Gly Cys Arg Gly Leu Arg Ile Thr Thr  
20 25 30

Asp Ala Cys Trp Gly Arg Cys Glu Thr Trp Glu Lys Pro Ile Leu Glu  
35 40 45

Pro Pro Tyr Ile Glu Ala His His Arg Val Cys Thr Tyr Asn Glu Thr  
50 55 60

Lys Gln Val Thr Val Lys Leu Pro Asn Cys Ala Pro Gly Val Asp Pro  
65 70 75 80

Phe Tyr Thr Tyr Pro Val Ala Ile Arg Cys Asp Cys Gly Ala Cys Ser  
85 90 95

Thr Ala Thr Thr Glu  
100

<210> 40  
<211> 40  
<212> PRT  
<213> Homo sapiens

<400> 40  
Ser Gly Leu Arg Cys Thr Ala Lys Cys Thr Thr Cys Gly Cys Pro Pro  
1 5 10 15

Pro Arg Val Cys Thr Tyr Glu Val Leu Pro Cys Pro Gly Val Asp Pro  
20 25 30

Pro Val Ala Cys Cys Gly Cys Thr  
 35 40

<210> 41  
 <211> 99  
 <212> PRT  
 <213> Homo sapiens

<400> 41  
 Ser Arg Gly Pro Leu Arg Pro Leu Cys Gln Pro Ile Asn Ala Thr Leu  
 1 5 10 15

Ala Ala Glu Lys Glu Ala Cys Pro Val Cys Ile Thr Phe Thr Thr Ser  
 20 25 30

Ile Cys Ala Gly Tyr Cys Pro Ser Met Lys Arg Val Leu Pro Val Ile  
 35 40 45

Leu Pro Pro Met Pro Gln Arg Val Cys Thr Tyr His Glu Leu Arg Phe  
 50 55 60

Ala Ser Val Arg Leu Pro Gly Cys Pro Pro Gly Val Asp Pro Met Val  
 65 70 75 80

Ser Phe Pro Val Ala Leu Ser Cys His Cys Gly Pro Cys Arg Leu Ser  
 85 90 95

Ser Thr Asp

<210> 42  
 <211> 116  
 <212> PRT  
 <213> Equus caballus

<400> 42  
 Met Ala Leu Leu Leu Leu Ala Gly Tyr Gly Cys Val Leu Gly Ala Ser  
 1 5 10 15

Ser Gly Asn Leu Arg Thr Phe Val Gly Cys Ala Val Arg Glu Phe Thr  
 20 25 30

Phe Leu Ala Lys Lys Pro Gly Cys Arg Gly Leu Arg Ile Thr Thr Asp  
 35 40 45

Ala Cys Trp Gly Arg Cys Glu Thr Trp Glu Lys Pro Ile Leu Glu Pro  
50 55 60

Pro Tyr Ile Glu Ala His His Arg Val Cys Thr Tyr Asn Glu Thr Lys  
65 70 75 80

Gln Val Thr Val Lys Leu Pro Asn Cys Ala Pro Gly Val Asp Pro Phe  
85 90 95

Tyr Thr Tyr Pro Val Ala Ile Arg Cys Asp Cys Gly Ala Cys Ser Thr  
100 105 110

Ala Thr Thr Glu  
115

<210> 43

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus  
sequence

<400> 43

Leu Leu Gly Val Ala Ser Gly Leu Arg Cys Thr Ala Lys Cys Thr Thr  
1 5 10 15

Cys Gly Cys Pro Ala Val Cys Thr Tyr Glu Leu Pro Cys Pro Gly Val  
20 25 30

Asp Pro Pro Val Ala Cys Cys Gly Cys Thr Thr  
35 40

<210> 44

<211> 113

<212> PRT

<213> Homo sapiens

<400> 44

Leu Leu Leu Trp Met Leu Leu Ser Val Gly Gly Val Trp Ala Ser Arg  
1 5 10 15

Gly Pro Leu Arg Pro Leu Cys Arg Pro Ile Asn Ala Thr Leu Ala Ala  
20 25 30

Glu Lys Glu Ala Cys Pro Ile Cys Ile Thr Phe Thr Thr Ser Ile Cys  
 35 40 45

Ala Gly Tyr Cys Pro Ser Met Val Arg Val Met Pro Ala Ala Leu Pro  
 50 55 60

Ala Ile Pro Gln Pro Val Cys Thr Tyr Arg Glu Leu Arg Phe Ala Ser  
 65 70 75 80

Ile Arg Leu Pro Gly Cys Pro Pro Gly Val Asp Pro Met Val Ser Phe  
 85 90 95

Pro Val Ala Leu Ser Cys His Cys Gly Pro Cys Gln Ile Lys Thr Thr  
 100 105 110

Asp

<210> 45

<211> 144

<212> PRT

<213> Homo sapiens

<400> 45

Met Gly Thr Pro Val Lys Ile Leu Val Val Arg Asn His Ile Leu Phe  
 1 5 10 15

Ser Val Val Val Leu Leu Ala Val Ala Gln Ser Ser Tyr Leu Pro Pro  
 20 25 30

Cys Glu Pro Val Asn Glu Thr Val Ala Val Glu Lys Glu Gly Cys Pro  
 35 40 45

Lys Cys Leu Val Leu Gln Thr Thr Ile Cys Ser Gly His Cys Leu Thr  
 50 55 60

Lys Glu Pro Val Tyr Lys Ser Pro Phe Ser Thr Val Tyr Gln His Val  
 65 70 75 80

Cys Thr Tyr Arg Asp Val Arg Tyr Glu Thr Val Arg Leu Pro Asp Cys  
 85 90 95

Pro Pro Gly Val Asp Pro His Ile Thr Tyr Pro Val Ala Leu Ser Cys  
 100 105 110

Asp Cys Ser Leu Cys Thr Met Asp Thr Ser Asp Cys Thr Ile Glu Ser  
 115 120 125

Leu Gln Pro Asp Phe Cys Met Ser Gln Arg Glu Asp Phe Leu Val Tyr  
 130 135 140

<210> 46

<211> 140

<212> PRT

<213> Carassius auratus

<400> 46

Met Gly Thr Pro Val Lys Ile Leu Val Val Leu Phe Ser Val Ile Val  
 1 5 10 15

Leu Leu Ala Val Ala Gln Ser Ser Tyr Leu Pro Pro Cys Glu Pro Val  
 20 25 30

Asn Glu Thr Val Ala Val Glu Lys Glu Gly Cys Pro Lys Cys Leu Val  
 35 40 45

Leu Gln Thr Thr Ile Cys Ser Gly His Cys Leu Thr Lys Glu Pro Val  
 50 55 60

Tyr Lys Ser Pro Phe Ser Thr Val Tyr Gln His Val Cys Thr Tyr Arg  
 65 70 75 80

Asp Val Arg Tyr Glu Thr Val Arg Leu Pro Asp Cys Pro Pro Gly Val  
 85 90 95

Asp Pro His Ile Thr Tyr Pro Val Ala Leu Ser Cys Asp Cys Ser Leu  
 100 105 110

Cys Thr Met Asp Thr Ser Asp Cys Thr Ile Glu Ser Leu Gln Pro Asp  
 115 120 125

Phe Cys Met Ser Gln Arg Glu Asp Phe Leu Val Tyr  
 130 135 140

<210> 47

<211> 141

<212> PRT

<213> Bos taurus

<400> 47



106070001

Met Glu Met Phe Gln Gly Leu Leu Leu Trp Leu Leu Leu Gly Val Ala  
1 5 10 15

Gly Val Trp Ala Ser Arg Gly Pro Leu Arg Pro Leu Cys Gln Pro Ile  
20 25 30

Asn Ala Thr Leu Ala Ala Glu Lys Glu Ala Cys Pro Val Cys Ile Thr  
35 40 45

Phe Thr Thr Ser Ile Cys Ala Gly Tyr Cys Pro Ser Met Lys Arg Val  
50 55 60

Leu Pro Val Ile Leu Pro Pro Met Pro Gln Arg Val Cys Thr Tyr His  
65 70 75 80

Glu Leu Arg Phe Ala Ser Val Arg Leu Pro Gly Cys Pro Pro Gly Val  
85 90 95

Asp Pro Met Val Ser Phe Pro Val Ala Leu Ser Cys His Cys Gly Pro  
100 105 110

Cys Arg Leu Ser Ser Thr Asp Cys Gly Gly Pro Arg Thr Gln Pro Leu  
115 120 125

Ala Cys Asp His Pro Pro Leu Pro Asp Ile Leu Phe Leu  
130 135 140

<210> 48

<211> 141

<212> PRT

<213> Ovis aries

<400> 48

Met Glu Met Leu Gln Gly Leu Leu Leu Trp Leu Leu Leu Gly Val Ala  
1 5 10 15

Gly Val Trp Ala Ser Arg Gly Pro Leu Arg Pro Leu Cys Gln Pro Ile  
20 25 30

Asn Ala Thr Leu Ala Ala Glu Lys Glu Ala Cys Pro Val Cys Ile Thr  
35 40 45

Phe Thr Thr Ser Ile Cys Ala Gly Tyr Cys Leu Ser Met Lys Arg Val  
50 55 60

Leu Pro Val Ile Leu Pro Pro Met Pro Gln Arg Val Cys Thr Tyr His  
65 70 75 80

Glu Leu Arg Phe Ala Ser Val Arg Leu Pro Gly Cys Pro Pro Gly Val  
85 90 95

Asp Pro Met Val Ser Phe Pro Val Ala Leu Ser Cys His Cys Gly Pro  
100 105 110

Cys Arg Leu Ser Ser Thr Asp Cys Gly Gly Pro Arg Thr Gln Pro Leu  
115 120 125

Ala Cys Asp His Pro Pro Leu Pro Asp Ile Leu Phe Leu  
130 135 140

<210> 49

<211> 230

<212> PRT

<213> Homo sapiens

<400> 49

Met Lys Leu Ala Phe Leu Phe Leu Gly Pro Met Ala Leu Leu Leu Leu  
1 5 10 15

Ala Gly Tyr Gly Cys Val Leu Gly Ala Ser Ser Gly Asn Leu Arg Thr  
20 25 30

Phe Val Gly Cys Ala Val Arg Glu Phe Thr Phe Leu Ala Lys Lys Pro  
35 40 45

Gly Cys Arg Gly Leu Arg Ile Thr Thr Asp Ala Cys Trp Gly Arg Cys  
50 55 60

Glu Thr Trp Glu Lys Pro Ile Leu Glu Pro Pro Tyr Ile Glu Ala His  
65 70 75 80

His Arg Val Cys Thr Tyr Asn Glu Thr Lys Gln Val Thr Val Lys Leu  
85 90 95

Pro Asn Cys Ala Pro Gly Val Asp Pro Phe Tyr Thr Tyr Pro Val Ala  
100 105 110

Ile Arg Cys Asp Cys Gly Ala Cys Ser Thr Ala Thr Thr Glu Leu Arg  
115 120 125

Leu Met Pro Gly Glu Ala Ala Val Ala Leu Gly Phe Trp Cys Gln Arg  
130 135 140

Arg Arg Gln Gly Ser Arg Thr Thr Gly Thr Arg Trp Arg His Ala Ala

145                      150                      155                      160  
 Val Arg Asp Lys Val Ser Leu Leu Lys Ala Val Asp Gly Trp Asn Gly  
                          165                      170                      175  
 Leu Leu Gly Asp Pro Ala Ser Ser Gln Gly Leu Ser Ala Ser Ser Cys  
                          180                      185                      190  
 Thr Pro Val Phe Pro Leu Ala Phe Gln Ile Asp Ser Ala Ser Gly Lys  
                          195                      200                      205  
 Val Gly Asn Phe Ser Ser Lys Gln Thr Phe Ile Phe Ser Ser Ala Glu  
                          210                      215                      220  
 Ile Thr Leu Gly Gly Thr  
 225                      230

<210> 50  
 <211> 215  
 <212> DNA  
 <213> Equus caballus

<400> 50  
 aggatgtgaa cattgaggaa ctgtacaaag gtggtgaaga ggccacacgc ttcaccttct 60  
 tccagagcag ctcaggctcc gccttcaggc ttgaggctgc tgcttggcct ggctgggttc 120  
 tgtgtggccc ggagagccc cagcagccag tacagctcac caaggagagt gagccctcag 180  
 cccgtaccaa gttttacttt gaacagagct ggtag 215

<210> 51  
 <211> 147  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: consensus  
                          sequence

<400> 51  
 agggtaacat gactgcaaag gagagcacgc ttcaccttct ccgcacggcc cccagcttg 60  
 agctgcgcct gcctggctgg ttccttgccg agagcacgcc gtcagctcac caaagagagc 120  
 ctcagtacca agtttactta agcgtag 147

<210> 52  
 <211> 218  
 <212> DNA

<213> Homo sapiens

<400> 52

aggcagtttaa catcactgac ctgagcaaga acaaggagga gaacaagcgc ttcaccttca 60  
tccgctcaaa cagtggcccc accaccagct tcgagtctgc cgcctgccct ggctgggtcc 120  
tctgcacggc gcaggaggca gaccggcccg tcagcctcac caacaagccc aaagagtcct 180  
tcatggtcac caagttctac ttccaggagg accagtag 218

<210> 53

<211> 149

<212> PRT

<213> Mus musculus

<400> 53

Cys Phe Arg Ile Lys Tyr Ala Asp Gln Lys Ala Leu Tyr Thr Arg Asp  
1 5 10 15  
Gly Gln Leu Leu Val Gly Asp Pro Val Ala Asp Asn Cys Cys Ala Glu  
20 25 30  
Lys Ile Cys Ile Leu Pro Asn Arg Gly Leu Ala Arg Thr Lys Val Pro  
35 40 45  
Ile Phe Leu Gly Ile Gln Gly Gly Ser Arg Cys Leu Ala Cys Val Glu  
50 55 60  
Thr Glu Glu Gly Pro Ser Leu Gln Leu Glu Pro Ser Thr Leu Pro Pro  
65 70 75 80  
Gln Asp Val Asn Ile Glu Glu Leu Tyr Lys Gly Gly Glu Glu Ala Thr  
85 90 95  
Arg Phe Thr Phe Phe Gln Ser Ser Ser Gly Ser Ala Phe Arg Leu Glu  
100 105 110  
Ala Ala Ala Trp Pro Gly Trp Phe Leu Cys Gly Pro Ala Glu Pro Gln  
115 120 125  
Gln Pro Val Gln Leu Thr Lys Glu Ser Glu Pro Ser Ala Arg Thr Lys  
130 135 140  
Phe Tyr Phe Glu Gln  
145

<210> 54

<211> 70

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus  
sequence

<400> 54

Cys Phe Arg Lys Lys Leu Tyr Gln Leu Leu Gly Ala Glu Ile Pro Asn  
1 5 10 15

Arg Leu Pro Leu Gly Gln Gly Gly Ser Cys Leu Cys Thr Glu Gly Pro  
20 25 30

Leu Leu Glu Pro Val Asn Ile Glu Leu Tyr Gly Glu Phe Thr Phe Gly  
35 40 45

Glu Ala Ala Pro Gly Trp Phe Leu Cys Glu Gln Pro Val Leu Thr Glu  
50 55 60

Ala Thr Phe Tyr Phe Gln  
65 70

<210> 55

<211> 146

<212> PRT

<213> Homo sapiens

<400> 55

Cys Phe Arg Met Lys Asp Ser Ala Leu Lys Val Leu Tyr Leu His Asn  
1 5 10 15

Asn Gln Leu Leu Ala Gly Gly Leu His Ala Glu Lys Val Ile Lys Gly  
20 25 30

Glu Glu Ile Ser Val Val Pro Asn Arg Ala Leu Asp Ala Ser Leu Ser  
35 40 45

Pro Val Ile Leu Gly Val Gln Gly Gly Ser Gln Cys Leu Ser Cys Gly  
50 55 60

Thr Glu Lys Gly Pro Ile Leu Lys Leu Glu Pro Val Asn Ile Met Glu  
65 70 75 80

Leu Tyr Leu Gly Ala Lys Glu Ser Lys Ser Phe Thr Phe Tyr Arg Arg  
85 90 95

Asp Met Gly Leu Thr Ser Ser Phe Glu Ser Ala Ala Tyr Pro Gly Trp  
 100 105 110

Phe Leu Cys Thr Ser Pro Glu Ala Asp Gln Pro Val Arg Leu Thr Gln  
 115 120 125

Ile Pro Glu Asp Pro Ala Trp Asp Ala Pro Ile Thr Asp Phe Tyr Phe  
 130 135 140

Gln Gln  
 145

<210> 56

<211> 149

<212> PRT

<213> Homo sapiens

<400> 56

Cys Phe Arg Ile Lys Tyr Ala Asp Gln Lys Ala Leu Tyr Thr Arg Asp  
 1 5 10 15

Gly Gln Leu Leu Val Gly Asp Pro Val Ala Asp Asn Cys Cys Ala Glu  
 20 25 30

Lys Ile Cys Ile Leu Pro Asn Arg Gly Leu Ala Arg Thr Lys Val Pro  
 35 40 45

Ile Phe Leu Gly Ile Gln Gly Gly Ser Arg Cys Leu Ala Cys Val Glu  
 50 55 60

Thr Glu Glu Gly Pro Ser Leu Gln Leu Glu Pro Ser Thr Leu Pro Pro  
 65 70 75 80

Gln Asp Val Asn Ile Glu Glu Leu Tyr Lys Gly Gly Glu Glu Ala Thr  
 85 90 95

Arg Phe Thr Phe Phe Gln Ser Ser Ser Gly Ser Ala Phe Arg Leu Glu  
 100 105 110

Ala Ala Ala Trp Pro Gly Trp Phe Leu Cys Gly Pro Ala Glu Pro Gln  
 115 120 125

Gln Pro Val Gln Leu Thr Lys Glu Ser Glu Pro Ser Ala Arg Thr Lys  
 130 135 140

Phe Tyr Phe Glu Gln  
 145



Asp Met Gly Leu Thr Ser Ser Phe Glu Ser Ala Ala Tyr Pro Gly Trp  
 100 105 110

Phe Leu Cys Thr Val Pro Glu Ala Asp Gln Pro Val Arg Leu Thr Gln  
 115 120 125

Leu Pro Glu Asn Gly Gly Trp Asn Ala Pro Ile Thr Asp Phe Tyr Phe  
 130 135 140

Gln Gln  
 145

<210> 59

<211> 173

<212> PRT

<213> Homo sapiens

<400> 59

Asp Asn His Thr Met Arg Gly Thr Pro Gly Asp Ala Asp Gly Gly Gly  
 1 5 10 15

Arg Ala Val Tyr Gln Ser Met Cys Lys Pro Ile Thr Gly Thr Ile Asn  
 20 25 30

Asp Leu Asn Gln Gln Val Trp Thr Leu Gln Gly Gln Asn Leu Val Ala  
 35 40 45

Val Pro Arg Ser Asp Ser Val Thr Pro Val Thr Val Ala Val Ile Thr  
 50 55 60

Cys Lys Tyr Pro Glu Ala Leu Glu Gln Gly Arg Gly Asp Pro Ile Tyr  
 65 70 75 80

Leu Gly Ile Gln Asn Pro Glu Met Cys Leu Tyr Cys Glu Lys Val Gly  
 85 90 95

Glu Gln Pro Thr Leu Gln Leu Lys Glu Gln Lys Ile Met Asp Leu Tyr  
 100 105 110

Gly Gln Pro Glu Pro Val Lys Pro Phe Leu Phe Tyr Arg Ala Lys Thr  
 115 120 125

Gly Arg Thr Ser Thr Leu Glu Ser Val Ala Phe Pro Asp Trp Phe Ile  
 130 135 140

Ala Ser Ser Lys Arg Asp Gln Pro Ile Ile Leu Thr Ser Glu Leu Gly  
 145 150 155 160



Lys Ser Tyr Asn Thr Ala Phe Glu Leu Asn Ile Asn Asp  
 165 170

<210> 60  
 <211> 212  
 <212> PRT  
 <213> Homo sapiens

<400> 60  
 Asp Asn His Thr Met Arg Gly Thr Pro Gly Asp Ala Asp Gly Gly Gly  
 1 5 10 15

Arg Ala Val Tyr Gln Ser Ser Glu Ser Asn Ala Val Gly Met Gly Leu  
 20 25 30

Trp Arg Leu Arg Pro Ser Ala Leu Thr Leu Ser Pro Val Glu Ala Pro  
 35 40 45

Ala Phe Ser Ala Pro Leu Cys Thr Leu Pro Phe Pro Pro Val Cys Lys  
 50 55 60

Pro Ile Thr Gly Thr Ile Asn Asp Leu Asn Gln Gln Val Trp Thr Leu  
 65 70 75 80

Gln Gly Gln Asn Leu Val Ala Val Pro Arg Ser Asp Ser Val Thr Pro  
 85 90 95

Val Thr Val Ala Val Ile Thr Cys Lys Tyr Pro Glu Ala Leu Glu Gln  
 100 105 110

Gly Arg Gly Asp Pro Ile Tyr Leu Gly Ile Gln Asn Pro Glu Met Cys  
 115 120 125

Leu Tyr Cys Glu Lys Val Gly Glu Gln Pro Thr Leu Gln Leu Lys Glu  
 130 135 140

Gln Lys Ile Met Asp Leu Tyr Gly Gln Pro Glu Pro Val Lys Pro Phe  
 145 150 155 160

Leu Phe Tyr Arg Ala Lys Thr Gly Arg Thr Ser Thr Leu Glu Ser Val  
 165 170 175

Ala Phe Pro Asp Trp Phe Ile Ala Ser Ser Lys Arg Asp Gln Pro Ile  
 180 185 190

Ile Leu Thr Ser Glu Leu Gly Lys Ser Tyr Asn Thr Ala Phe Glu Leu

205

<213> Homo sapiens

<213> Homo sapiens

<400> 62

Met Ala Leu Ala Asp Leu Tyr Glu Glu Gly Gly Gly Gly Gly Glu  
1 5 10 15

Gly Glu Asp Asn Ala Asp Ser Lys Glu Thr Ile Cys Arg Pro Ser Gly  
20 25 30

Arg Lys Ser Ser Lys Met Gln Ala Phe Arg Ile Trp Asp Val Asn Gln  
35 40 45

Lys Thr Phe Tyr Leu Arg Asn Asn Gln Leu Val Ala Gly Tyr Leu Gln  
50 55 60

Gly Pro Asn Val Asn Leu Glu Glu Lys Ile Asp Val Val Pro Ile Glu  
65 70 75 80

Pro His Ala Leu Phe Leu Gly Ile His Gly Gly Lys Met Cys Leu Ser  
85 90 95

Cys Val Lys Ser Gly Asp Glu Thr Arg Leu Gln Leu Glu Ala Val Asn  
100 105 110

Ile Thr Asp Leu Ser Glu Asn Arg Lys Gln Asp Lys Arg Phe Ala Phe  
115 120 125

Ile Arg Ser Asp Ser Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys  
130 135 140

Pro Gly Trp Phe Leu Cys Thr Ala Met Glu Ala Asp Gln Pro Val Ser  
145 150 155 160

Leu Thr Asn Met Pro Asp Glu Gly Val Met Val Thr Lys Phe Tyr Phe  
165 170 175

Gln Glu Asp Glu  
180

<210> 63

<211> 158

<212> PRT

<213> Homo sapiens

<400> 63

Gly Pro Ser Ala Leu Ser Tyr Cys Phe Arg Ile Lys Tyr Ala Asp Gln  
1 5 10 15

Lys Ala Leu Tyr Thr Arg Asp Gly Gln Leu Leu Val Gly Asp Pro Val



His Val Phe Arg Asp Asp Asp Leu Arg Ser Ile Leu Ser Phe Ile Phe  
85 90 95

Glu Glu Glu Pro Val Ile Phe Glu Thr Ser Ser Asp Glu Leu Leu Cys  
100 105 110

Asp Ala Ala Val Gln Ser Val Lys Cys Lys Leu Gln Asp Arg Glu Gln  
115 120 125

Lys Ser Leu Val Leu Asp Ser Pro Cys Val Leu Lys Ala Leu His Leu  
130 135 140

Leu Ser Gln Glu Met Ser Arg Glu Val Val Phe Cys Met Ser Phe Val  
145 150 155 160

Gln Gly Glu Glu Arg Asp Asn Lys Ile Pro Val Ala Leu Gly Ile Arg  
165 170 175

Asp Lys Asn Leu Tyr Leu Ser Cys Val Lys Lys Gly Asp Thr Pro Thr  
180 185 190

Leu Gln Leu Glu Glu Val Asp Pro Lys Val Tyr Pro Lys Arg Asn Met  
195 200 205

Glu Lys Arg Phe Val Phe Tyr Lys Thr Glu Ile Lys Asn Thr Val Glu  
210 215 220

Phe Glu Ser Val Leu Tyr Pro Asn Trp Tyr Ile Ser Thr Ser Gln Ile  
225 230 235 240

Glu Glu Lys Pro Val Phe Leu Gly Arg Phe Arg Gly Gly Gln Asp Ile  
245 250 255

Thr Asp Phe Arg Met Glu Thr Leu Ser Pro  
260 265

<210> 65

<211> 329

<212> DNA

<213> Sus scrofa

<400> 65

catttaatatag cctgtagaga cacagaattc agtgacaagg aaaagggttaa tatgggtttac 60  
ctgggaatca agggaaaaga tctctgtctc ttctgtgcag aaattcaggg caagcctact 120  
ttgcagctta aggaataaaa tatcatggac ctgtatgtgg agaagaaagc acagaagccc 180  
tttctctttt tccacaataa agaaggctcc acttctgtct ttcagtcagt ctcttaccct 240  
ggctggttca tagccacctc caccacatca ggacagccca tctttctcac caaggagaga 300

ggcataacta ataacactaa cttctactt

329

<210> 66

<211> 197

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus  
sequence

<400> 66

catatactga gagaaagatg tgcgagtatt gttcctggga tcaggaactt gcttctgtga 60  
atcggagtat cagtagaaaa tcagacctga gaagagcaaa agccttcttt cccaagggcc 120  
cacccttttag tcagcctcct ggctgggttct cactcacaac agcagcctct caccaagagc 180  
ataacacaat tctactt 197

<210> 67

<211> 331

<212> DNA

<213> Homo sapiens

<400> 67

caaataactaa actggaagag aagatagatg tggtgctgt tgagcctcat tttgtgttcc 60  
tggggatcca tggagggaag ctgtgcctgt cctgtgtcaa gtctgggtgat gagatgaagc 120  
tccagttgga cgcagttaac atcacagacc tgagaaagaa cagcgagcag gacaagcgct 180  
tcaccttcat ccgtccgac agtggcccca ccaccagctt tgagtcagcc gcctgtcctg 240  
gctggttcct ctgcactgca ctagaggcag accagcctgt tggcctcacc aacacgcca 300  
aagcagccgt caaggtcacc aagttctact t 331

<210> 68

<211> 149

<212> PRT

<213> Homo sapiens

<400> 68

Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
1 5 10 15

Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
20 25 30

Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
35 40 45

Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
 50 55 60

Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Glu  
 65 70 75 80

Lys Asn Ile Met Asp Leu Tyr Val Glu Lys Lys Ala Gln Lys Pro Phe  
 85 90 95

Leu Phe Phe His Asn Lys Glu Gly Ser Thr Ser Val Phe Gln Ser Val  
 100 105 110

Ser Tyr Pro Gly Trp Phe Ile Ala Thr Ser Thr Thr Ser Gly Gln Pro  
 115 120 125

Ile Phe Leu Thr Lys Glu Arg Gly Ile Thr Asn Asn Thr Asn Phe Tyr  
 130 135 140

Leu Asp Ser Val Glu  
 145

<210> 69

<211> 149

<212> PRT

<213> Homo sapiens

<400> 69

Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
 1 5 10 15

Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
 20 25 30

Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
 35 40 45

Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
 50 55 60

Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Glu  
 65 70 75 80

Lys Asn Ile Met Asp Leu Tyr Val Glu Lys Lys Ala Gln Lys Pro Phe  
 85 90 95

Leu Phe Phe His Asn Lys Glu Gly Ser Thr Ser Val Phe Gln Ser Val  
 100 105 110

Ser Tyr Pro Gly Trp Phe Ile Ala Thr Ser Thr Thr Ser Gly Gln Pro  
 115 120 125

Ile Phe Leu Thr Lys Glu Arg Gly Ile Thr Asn Asn Thr Asn Phe Tyr  
 130 135 140

Leu Asp Ser Val Glu  
 145

<210> 70

<211> 149

<212> PRT

<213> Homo sapiens

<400> 70

Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
 1 5 10 15

Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
 20 25 30

Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
 35 40 45

Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
 50 55 60

Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Glu  
 65 70 75 80

Lys Asn Ile Met Asp Leu Tyr Val Glu Lys Lys Ala Gln Lys Pro Phe  
 85 90 95

Leu Phe Phe His Asn Lys Glu Gly Ser Thr Ser Val Phe Gln Ser Val  
 100 105 110

Ser Tyr Pro Gly Trp Phe Ile Ala Thr Ser Thr Thr Ser Gly Gln Pro  
 115 120 125

Ile Phe Leu Thr Lys Glu Arg Gly Ile Thr Asn Asn Thr Asn Phe Tyr  
 130 135 140

Leu Asp Ser Val Glu  
 145



<210> 71  
 <211> 85  
 <212> PRT  
 <213> Homo sapiens

<400> 71  
 Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
 1 5 10 15  
 Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
 20 25 30  
 Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
 35 40 45  
 Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
 50 55 60  
 Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Glu  
 65 70 75 80  
 Lys Asn Ile Met Asp  
 85

<210> 72  
 <211> 80  
 <212> PRT  
 <213> Homo sapiens

<400> 72  
 Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
 1 5 10 15  
 Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
 20 25 30  
 Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
 35 40 45  
 Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
 50 55 60  
 Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Asp  
 65 70 75 80

<210> 73  
 <211> 85  
 <212> PRT  
 <213> Homo sapiens

<400> 73  
 Pro Lys Ser Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu  
   1                  5                  10                  15  
 Ser Gly Asn Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro  
                   20                  25                  30  
 Val Thr Leu His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys  
           35                  40                  45  
 Glu Lys Gly Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys  
       50                  55                  60  
 Leu Phe Cys Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Leu  
   65                  70                  75                  80  
 Gln Gly Ser Gln Asp  
                   85

<210> 74  
 <211> 146  
 <212> PRT  
 <213> Homo sapiens

<400> 74  
 Tyr Ala Ile Arg Asp Ser Arg Gln Met Val Trp Val Leu Ser Gly Asn  
   1                  5                  10                  15  
 Ser Leu Ile Ala Ala Pro Leu Ser Arg Ser Ile Lys Pro Val Thr Leu  
           20                  25                  30  
 His Leu Ile Ala Cys Arg Asp Thr Glu Phe Ser Asp Lys Glu Lys Gly  
       35                  40                  45  
 Asn Met Val Tyr Leu Gly Ile Lys Gly Lys Asp Leu Cys Leu Phe Cys  
       50                  55                  60  
 Ala Glu Ile Gln Gly Lys Pro Thr Leu Gln Leu Lys Glu Lys Asn Ile  
   65                  70                  75                  80

TP5020-490E-50

Met Asp Leu Tyr Val Glu Lys Lys Ala Gln Lys Pro Phe Leu Phe Phe  
85 90 95

His Asn Lys Glu Gly Ser Thr Ser Val Phe Gln Ser Val Ser Tyr Pro  
100 105 110

Gly Trp Phe Ile Ala Thr Ser Thr Thr Ser Gly Gln Pro Ile Phe Leu  
115 120 125

Thr Lys Glu Arg Gly Ile Thr Asn Asn Thr Asn Phe Tyr Leu Asp Ser  
130 135 140

Val Glu  
145

<210> 75

<211> 52

<212> PRT

<213> Homo sapiens

<400> 75

Asp Ser Val Leu Asn Leu Ala Leu Lys Ile Asp Leu Gly Gly Cys Leu  
1 5 10 15

Cys Gln Pro Thr Leu Leu Asn Ile Met Leu Tyr Lys Lys Phe Phe Gly  
20 25 30

Thr Ser Phe Ser Tyr Pro Gly Trp Phe Thr Gln Pro Leu Thr Glu Gly  
35 40 45

Asn Thr Phe Tyr  
50

<210> 76

<211> 147

<212> PRT

<213> Homo sapiens

<400> 76

Phe Arg Met Lys Asp Ser Ala Leu Lys Val Leu Tyr Leu His Asn Asn  
1 5 10 15

Gln Leu Leu Ala Gly Gly Leu His Ala Gly Lys Val Ile Lys Gly Glu  
20 25 30

Glu Ile Ser Val Val Pro Asn Arg Trp Leu Asp Ala Ser Leu Ser Pro



Leu Gln Leu Lys Glu Lys Asn Ile Met Asp Leu Tyr Val Glu Lys Lys  
 100 105 110

Ala Gln Lys Pro Phe Leu Phe Phe His Asn Lys Glu Gly Ser Thr Ser  
 115 120 125

Val Phe Gln Ser Val Ser Tyr Pro Gly Trp Phe Ile Ala Thr Ser Thr  
 130 135 140

Thr Ser Gly Gln Pro Ile Phe Leu Thr Lys Glu Arg Gly Ile Thr Asn  
 145 150 155 160

Asn Thr Asn Phe Tyr Leu Asp Ser Val Glu  
 165 170

<210> 78

<211> 212

<212> PRT

<213> Homo sapiens

<400> 78

Asp Asn His Thr Met Arg Gly Thr Pro Gly Asp Ala Asp Gly Gly Gly  
 1 5 10 15

Arg Ala Val Tyr Gln Ser Ser Glu Ser Asn Ala Val Gly Met Gly Leu  
 20 25 30

Trp Arg Leu Arg Pro Ser Ala Leu Thr Leu Ser Pro Val Glu Ala Pro  
 35 40 45

Ala Phe Ser Ala Pro Leu Cys Thr Leu Pro Phe Pro Pro Val Cys Lys  
 50 55 60

Pro Ile Thr Gly Thr Ile Asn Asp Leu Asn Gln Gln Val Trp Thr Leu  
 65 70 75 80

Gln Gly Gln Asn Leu Val Ala Val Pro Arg Ser Asp Ser Val Thr Pro  
 85 90 95

Val Thr Val Ala Val Ile Thr Cys Lys Tyr Pro Glu Ala Leu Glu Gln  
 100 105 110

Gly Arg Gly Asp Pro Ile Tyr Leu Gly Ile Gln Asn Pro Glu Met Cys  
 115 120 125

Leu Tyr Cys Glu Lys Val Gly Glu Gln Pro Thr Leu Gln Leu Lys Glu  
 130 135 140

Gln Lys Ile Met Asp Leu Tyr Gly Gln Pro Glu Pro Val Lys Pro Phe  
145 150 155 160

Leu Phe Tyr Arg Ala Lys Thr Gly Arg Thr Ser Thr Leu Glu Ser Val  
165 170 175

Ala Phe Pro Asp Trp Phe Ile Ala Ser Ser Lys Arg Asp Gln Pro Ile  
180 185 190

Ile Leu Thr Ser Glu Leu Gly Lys Ser Tyr Asn Thr Ala Phe Glu Leu  
195 200 205

Asn Ile Asn Asp  
210

<210> 79

<211> 180

<212> PRT

<213> Homo sapiens

<400> 79

Met Ala Leu Ala Asp Leu Tyr Glu Glu Gly Gly Gly Gly Gly Glu  
1 5 10 15

Gly Glu Asp Asn Ala Asp Ser Lys Glu Thr Ile Cys Arg Pro Ser Gly  
20 25 30

Arg Lys Ser Ser Lys Met Gln Ala Phe Arg Ile Trp Asp Val Asn Gln  
35 40 45

Lys Thr Phe Tyr Leu Arg Asn Asn Gln Leu Val Ala Gly Tyr Leu Gln  
50 55 60

Gly Pro Asn Val Asn Leu Glu Glu Lys Ile Asp Val Val Pro Ile Glu  
65 70 75 80

Pro His Ala Leu Phe Leu Gly Ile His Gly Gly Lys Met Cys Leu Ser  
85 90 95

Cys Val Lys Ser Gly Asp Glu Thr Arg Leu Gln Leu Glu Ala Val Asn  
100 105 110

Ile Thr Asp Leu Ser Glu Asn Arg Lys Gln Asp Lys Arg Phe Ala Phe  
115 120 125

Ile Arg Ser Asp Ser Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys

130

135

140

Pro Gly Trp Phe Leu Cys Thr Ala Met Glu Ala Asp Gln Pro Val Ser  
 145 150 155 160

Leu Thr Asn Met Pro Asp Glu Gly Val Met Val Thr Lys Phe Tyr Phe  
 165 170 175

Gln Glu Asp Glu  
 180

&lt;210&gt; 80

&lt;211&gt; 155

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 80

Met Val Leu Ser Gly Ala Leu Cys Phe Arg Met Lys Asp Ser Ala Leu  
 1 5 10 15

Lys Val Leu Tyr Leu His Asn Asn Gln Leu Leu Ala Gly Gly Leu His  
 20 25 30

Ala Gly Lys Val Ile Lys Gly Glu Glu Ile Ser Val Val Pro Asn Arg  
 35 40 45

Trp Leu Asp Ala Ser Leu Ser Pro Val Ile Leu Gly Val Gln Gly Gly  
 50 55 60

Ser Gln Cys Leu Ser Cys Gly Val Gly Gln Glu Pro Thr Leu Thr Leu  
 65 70 75 80

Glu Pro Val Asn Ile Met Glu Leu Tyr Leu Gly Ala Lys Glu Ser Lys  
 85 90 95

Ser Phe Thr Phe Tyr Arg Arg Asp Met Gly Leu Thr Ser Ser Phe Glu  
 100 105 110

Ser Ala Ala Tyr Pro Gly Trp Phe Leu Cys Thr Val Pro Glu Ala Asp  
 115 120 125

Gln Pro Val Arg Leu Thr Gln Leu Pro Glu Asn Gly Gly Trp Asn Ala  
 130 135 140

Pro Ile Thr Asp Phe Tyr Phe Gln Gln Cys Asp  
 145 150 155

<210> 81  
 <211> 266  
 <212> PRT  
 <213> Homo sapiens

<400> 81

Met Ala Thr Val Pro Glu Pro Ile Asn Glu Val Met Ala Tyr Tyr Ser  
 1 5 10 15

Asp Glu Asn Glu Leu Leu Phe Glu Val Asp Gly Pro Lys Gln Met Lys  
 20 25 30

Ser Cys Thr Gln His Leu Asp Leu Gly Ser Met Gly Asp Gly Asn Ile  
 35 40 45

Gln Leu Gln Ile Ser His Gln Leu Tyr Asn Lys Ser Phe Arg Gln Val  
 50 55 60

Val Ser Val Ile Val Ala Met Glu Lys Leu Arg Ser Arg Ala Tyr Glu  
 65 70 75 80

His Val Phe Arg Asp Asp Asp Leu Arg Ser Ile Leu Ser Phe Ile Phe  
 85 90 95

Glu Glu Glu Pro Val Ile Phe Glu Thr Ser Ser Asp Glu Leu Leu Cys  
 100 105 110

Asp Ala Ala Val Gln Ser Val Lys Cys Lys Leu Gln Asp Arg Glu Gln  
 115 120 125

Lys Ser Leu Val Leu Asp Ser Pro Cys Val Leu Lys Ala Leu His Leu  
 130 135 140

Leu Ser Gln Glu Met Ser Arg Glu Val Val Phe Cys Met Ser Phe Val  
 145 150 155 160

Gln Gly Glu Glu Arg Asp Asn Lys Ile Pro Val Ala Leu Gly Ile Arg  
 165 170 175

Asp Lys Asn Leu Tyr Leu Ser Cys Val Lys Lys Gly Asp Thr Pro Thr  
 180 185 190

Leu Gln Leu Glu Glu Val Asp Pro Lys Val Tyr Pro Lys Arg Asn Met  
 195 200 205

Glu Lys Arg Phe Val Phe Tyr Lys Thr Glu Ile Lys Asn Thr Val Glu  
 210 215 220



Phe Glu Ser Val Leu Tyr Pro Asn Trp Tyr Ile Ser Thr Ser Gln Ile  
 225 230 235 240

Glu Glu Lys Pro Val Phe Leu Gly Arg Phe Arg Gly Gly Gln Asp Ile  
 245 250 255

Thr Asp Phe Arg Met Glu Thr Leu Ser Pro  
 260 265

<210> 82

<211> 244

<212> DNA

<213> Homo sapiens

<400> 82

tctacctggg cctgaatgga ctcaatctct gctgatgtg tgctaaagtc ggggaccagc 60  
 ccacactgca gctgaagctt caggaaaagg atataatgga tttgtacaac caacccgagc 120  
 ctgtgaagtc ctttctcttc taccacagcc agagtggcag gaactccacc ttcgagtctg 180  
 tggctttccc tggctgggtc atcgctgtca gctctgaagg aggctgtcct ctcatectta 240  
 ccca 244

<210> 83

<211> 150

<212> DNA

<213> Homo sapiens

<400> 83

ttcctgggta tggaaacttg cctgtgtgta agtcgggaag actcagtgac cagaaataga 60  
 tgaaaaaccg agcgaagctt cttccccaa gtggcaccca cttgagtcgg ctctgggctg 120  
 gttctctgcg cctaggagcc cttcctacca 150

<210> 84

<211> 238

<212> DNA

<213> Homo sapiens

<400> 84

tggtcctggg gatccatgga gggaagctgt gctgtcctg tgtcaagtct ggtgatgaga 60  
 tgaagctcca gttggacgca gttaacatca cagacctgag aaagaacagc gagcaggaca 120  
 agcgcttcac cttcatccgc tccgacagtg gccccaccac cagctttgag tcagccgcct 180  
 gtcctggctg gttcctctgc actgcactag aggcagacca gcctgttggc ctcaccaa 238

<210> 85

<211> 130  
 <212> PRT  
 <213> Homo sapiens

<400> 85

Asp Ile Asn His Arg Val Trp Val Leu Gln Asp Gln Thr Leu Ile Ala  
 1 5 10 15

Val Pro Arg Lys Val Phe Pro Val Thr Ile Ala Leu Ile Ser Cys Arg  
 20 25 30

His Val Glu Thr Leu Glu Lys Asp Arg Gly Asn Pro Ile Tyr Leu Gly  
 35 40 45

Leu Asn Gly Leu Asn Leu Cys Leu Met Cys Ala Lys Val Gly Asp Gln  
 50 55 60

Pro Thr Leu Gln Leu Lys Leu Gln Glu Lys Asp Ile Met Asp Leu Tyr  
 65 70 75 80

Asn Gln Pro Glu Pro Val Lys Ser Phe Leu Phe Tyr His Ser Gln Ser  
 85 90 95

Gly Arg Asn Ser Thr Phe Glu Ser Val Ala Phe Pro Gly Trp Phe Ile  
 100 105 110

Ala Val Ser Ser Glu Gly Gly Cys Pro Leu Ile Leu Thr Gln Glu Leu  
 115 120 125

Gly Lys  
 130

<210> 86  
 <211> 126  
 <212> PRT  
 <213> Homo sapiens

<400> 86

Asp Ile Asn His Arg Val Trp Val Leu Gln Asp Gln Thr Leu Ile Ala  
 1 5 10 15

Val Pro Arg Lys Pro Val Thr Ile Ala Leu Ile Ser Cys Arg His Val  
 20 25 30

Glu Thr Leu Glu Lys Asp Arg Gly Asn Pro Ile Tyr Leu Gly Leu Asn  
 35 40 45



<210> 88  
 <211> 130  
 <212> PRT  
 <213> Homo sapiens

<400> 88  
 Asp Ile Asn His Arg Val Trp Val Leu Gln Asp Gln Thr Leu Ile Ala  
 1 5 10 15  
 Val Pro Arg Lys Val Phe Pro Val Thr Ile Ala Leu Ile Ser Cys Arg  
 20 25 30  
 His Val Glu Thr Leu Glu Lys Asp Arg Gly Asn Pro Ile Tyr Leu Gly  
 35 40 45  
 Leu Asn Gly Leu Asn Leu Cys Leu Met Cys Ala Lys Val Gly Asp Gln  
 50 55 60  
 Pro Thr Leu Gln Leu Lys Leu Gln Glu Lys Asp Ile Met Asp Leu Tyr  
 65 70 75 80  
 Asn Gln Pro Glu Pro Val Lys Ser Phe Leu Phe Tyr His Ser Gln Ser  
 85 90 95  
 Gly Arg Asn Ser Thr Phe Glu Ser Val Ala Phe Pro Gly Trp Phe Ile  
 100 105 110  
 Ala Val Ser Ser Glu Gly Gly Cys Pro Leu Ile Leu Thr Gln Glu Leu  
 115 120 125  
 Gly Lys  
 130

<210> 89  
 <211> 82  
 <212> PRT  
 <213> Homo sapiens

<400> 89  
 Asp Asn Val Trp Leu Gln Gln Leu Ala Val Pro Arg Val Pro Val Thr  
 1 5 10 15  
 Ala Ile Cys Glu Leu Glu Arg Gly Pro Ile Tyr Leu Gly Cys Leu Cys  
 20 25 30



<211> 81  
 <212> PRT  
 <213> Mus musculus

<400> 91  
 Ile Tyr Leu Gly Leu Asn Gly Leu Asn Leu Cys Leu Met Cys Ala Lys  
 1 5 10 15  
 Val Gly Asp Gln Pro Thr Leu Gln Leu Lys Leu Gln Glu Lys Asp Ile  
 20 25 30  
 Met Asp Leu Tyr Asn Gln Pro Glu Pro Val Lys Ser Phe Leu Phe Tyr  
 35 40 45  
 His Ser Gln Ser Gly Arg Asn Ser Thr Phe Glu Ser Val Ala Phe Pro  
 50 55 60  
 Gly Trp Phe Ile Ala Val Ser Ser Glu Gly Gly Cys Pro Leu Ile Leu  
 65 70 75 80

Thr

<210> 92  
 <211> 35  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: consensus  
 sequence

<400> 92  
 Leu Gly Gly Leu Cys Leu Cys Ala Lys Gly Asp Leu Leu Glu Ile Asp  
 1 5 10 15  
 Leu Glu Lys Phe Phe Ser Gly Phe Glu Ser Ala Pro Gly Trp Phe Glu  
 20 25 30  
 Pro Leu Thr  
 35

<210> 93  
 <211> 79  
 <212> PRT  
 <213> Homo sapiens

<400> 93

Val Phe Leu Gly Ile His Gly Gly Lys Leu Cys Leu Ser Cys Ala Lys  
1 5 10 15

Ser Gly Asp Asp Ile Lys Leu Gln Leu Glu Glu Val Asn Ile Thr Asp  
20 25 30

Leu Ser Lys Asn Lys Glu Glu Asp Lys Arg Phe Thr Phe Ile Arg Ser  
35 40 45

Glu Lys Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys Pro Gly Trp  
50 55 60

Phe Leu Cys Thr Thr Leu Glu Ala Asp Arg Pro Val Ser Leu Thr  
65 70 75

<210> 94

<211> 178

<212> PRT

<213> Mus musculus

<400> 94

Met Glu Ile Cys Trp Gly Pro Tyr Ser His Leu Ile Ser Leu Leu Leu  
1 5 10 15

Ile Leu Leu Phe His Ser Glu Ala Ala Cys Arg Pro Ser Gly Lys Arg  
20 25 30

Pro Cys Lys Met Gln Ala Phe Arg Ile Trp Asp Thr Asn Gln Lys Thr  
35 40 45

Phe Tyr Leu Arg Asn Asn Gln Leu Ile Ala Gly Tyr Leu Gln Gly Pro  
50 55 60

Asn Ile Lys Leu Glu Glu Lys Ile Asp Met Val Pro Ile Asp Leu His  
65 70 75 80

Ser Val Phe Leu Gly Ile His Gly Gly Lys Leu Cys Leu Ser Cys Ala  
85 90 95

Lys Ser Gly Asp Asp Ile Lys Leu Gln Leu Glu Glu Val Asn Ile Thr  
100 105 110

Asp Leu Ser Lys Asn Lys Glu Glu Asp Lys Arg Phe Thr Phe Ile Arg  
115 120 125

Ser Glu Lys Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys Pro Gly  
130 135 140

Trp Phe Leu Cys Thr Thr Leu Glu Ala Asp Arg Pro Val Ser Leu Thr  
145 150 155 160

Asn Thr Pro Glu Glu Pro Leu Ile Val Thr Lys Phe Tyr Phe Gln Glu  
165 170 175

Asp Gln

<210> 95

<211> 177

<212> PRT

<213> Equus caballus

<400> 95

Met Glu Ile Arg Arg Arg Ser Val Arg His Leu Ile Ser Leu Leu Leu  
1 5 10 15

Phe Leu Phe Tyr Ser Glu Thr Ala Cys His Pro Leu Gly Lys Arg Pro  
20 25 30

Cys Lys Met Gln Ala Phe Arg Ile Trp Asp Val Asn Gln Lys Thr Phe  
35 40 45

Tyr Met Arg Asn Asn Gln Leu Val Ala Gly Tyr Leu Gln Glu Ser Asn  
50 55 60

Thr Lys Leu Gln Glu Lys Ile Asp Val Val Pro Ile Glu Pro Asp Ala  
65 70 75 80

Leu Phe Leu Gly Leu His Gly Arg Lys Leu Cys Leu Ala Cys Val Lys  
85 90 95

Ser Gly Asp Glu Ile Arg Phe Gln Leu Glu Ala Val Asn Ile Thr Asp  
100 105 110

Leu Ser Lys Asn Lys Glu Glu Asn Lys Arg Phe Thr Phe Ile Arg Ser  
115 120 125

Asn Ser Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys Pro Gly Trp  
130 135 140

Phe Leu Cys Thr Ala Gln Glu Ala Asp Arg Pro Val Ser Leu Thr Asn  
145 150 155 160



Lys Pro Lys Glu Ser Phe Met Val Thr Lys Phe Tyr Leu Gln Glu Asp  
165 170 175

Gln

<210> 96  
<211> 155  
<212> PRT  
<213> Homo sapiens

<400> 96  
Met Val Leu Ser Gly Ala Leu Cys Phe Arg Met Lys Asp Ser Ala Leu  
1 5 10 15

Lys Val Leu Tyr Leu His Asn Asn Gln Leu Leu Ala Gly Gly Leu His  
20 25 30

Ala Gly Lys Val Ile Lys Gly Glu Glu Ile Ser Val Val Pro Asn Arg  
35 40 45

Trp Leu Asp Ala Ser Leu Ser Pro Val Ile Leu Gly Val Gln Gly Gly  
50 55 60

Ser Gln Cys Leu Ser Cys Gly Val Gly Gln Glu Pro Thr Leu Thr Leu  
65 70 75 80

Glu Pro Val Asn Ile Met Glu Leu Tyr Leu Gly Ala Lys Glu Ser Lys  
85 90 95

Ser Phe Thr Phe Tyr Arg Arg Asp Met Gly Leu Thr Ser Ser Phe Glu  
100 105 110

Ser Ala Ala Tyr Pro Gly Trp Phe Leu Cys Thr Val Pro Glu Ala Asp  
115 120 125

Gln Pro Val Arg Leu Thr Gln Leu Pro Glu Asn Gly Gly Trp Asn Ala  
130 135 140

Pro Ile Thr Asp Phe Tyr Phe Gln Gln Cys Asp  
145 150 155

<210> 97  
<211> 130  
<212> PRT

<213> Homo sapiens

<400> 97

Asp Ile Asn His Arg Val Trp Val Leu Gln Asp Gln Thr Leu Ile Ala  
1 5 10 15

Val Pro Arg Lys Val Phe Pro Val Thr Ile Ala Leu Ile Ser Cys Arg  
20 25 30

His Val Glu Thr Leu Glu Lys Asp Arg Gly Asn Pro Ile Tyr Leu Gly  
35 40 45

Leu Asn Gly Leu Asn Leu Cys Leu Met Cys Ala Lys Val Gly Asp Gln  
50 55 60

Pro Thr Leu Gln Leu Lys Leu Gln Glu Lys Asp Ile Met Asp Leu Tyr  
65 70 75 80

Asn Gln Pro Glu Pro Val Lys Ser Phe Leu Phe Tyr His Ser Gln Ser  
85 90 95

Gly Arg Asn Ser Thr Phe Glu Ser Val Ala Phe Pro Gly Trp Phe Ile  
100 105 110

Ala Val Ser Ser Glu Gly Gly Cys Pro Leu Ile Leu Thr Gln Glu Leu  
115 120 125

Gly Lys  
130

<210> 98

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically  
synthesized

<400> 98

tgaagcttca gctgcagtgt

20

<210> 99

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 99

ccgacttttag cacacatcag gcagag

26

<210> 100

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chemically synthesized

<400> 100

gggcctgaat ggactcaat

19

59